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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,091	03/16/2005	Magnus Pettersson	BERGLUNDS P0238	7065
27667 7590 08/17/2007 HAYES SOLOWAY P.C. 3450 E. SUNRISE DRIVE, SUITE 140 TUCSON, AZ 85718			EXAMINER TON, TRI T	
			ART UNIT 2877	PAPER NUMBER
			MAIL DATE 08/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/528,091

Applicant(s)

PETTERSSON ET AL.

Examiner

Tri T. Ton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-10, 23-28, 30 and 33-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-9, 23-26, 30, 33 and 35-40 is/are rejected.
- 7) ☒ Claim(s) 10, 27, 28 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/16/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Election/Restrictions*

1. Applicant's election with traverse of Group I, comprising claims 7-10, 24-28, 30, 33-40, and 23 in the reply filed on 05/31/07 is acknowledged. The traversal is on the ground(s) that the Official Action has not established a prima facie justification for the requirement for the election. This is not found persuasive therefore the restriction has been maintained for the reason below:

- I. Claims 7-10, 23-28, 30, 33-40, drawn to an optical probe arrangement, classified in class 356, subclass 39.
- II. Claims 1-6, 11-22, 29, 31-32, drawn to a sensor device, classified in class 356, subclass 442.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because **[the subcombination requires at least two sets of light emitters and light detectors not required by the combination]**. The subcombination has separate utility such as **[the sensor device, comprising sensor sectors, does require the particulars of the combination]**.

The requirement is still deemed proper and is therefore made FINAL.

***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 03/16/05 has been entered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

***Oath/Declaration***

4. The Oath and Declaration filed on 03/16/2005 is acceptable.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 7-9, 24-26, 33, 36 are rejected under 35 U.S.C. 102(b) as being taught by Klein (U.S. Patent No. 6,315,955). Hereafter, "Klein".

Regarding Claim 7, Klein teaches at least two sets of light emitters and light detectors (abstract lines 3-5), each set comprising one light emitter and at least one detector, each set arranged to transilluminate the blood at a preferred angle between said light emitter and said

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light detector - or detectors - of each set (Figure 9, elements 39, 40), (Figure 10, elements 54, 55), where said angle is at least sufficient to avert direct light from said light emitter to said light detector, for the detection of blood constituents (Figure 9, elements 39, 40), (Figure 10, elements 54, 55), (column 22, lines 38-43).

Regarding Claim 8, Klein teaches four sets of light emitters and two or three light detectors in each set, wherein a light detector may represent a detector incorporated in an adjacent set (abstract, lines 3-5), (Figure 8, Figure 9, elements 38, 39, 40), (column 22, lines 36-63), (column 23, lines 22-32), (Figure 10, elements 54, 55).

Regarding Claim 9, Klein teaches the light emitters being arranged as an array to encircle an elongated receptacle at longitudinally one location around said receptacle's circumference (Figure 8, Figure 9, element 38), (Figure 10, element 54), and the light detector are arranged to encircle the receptacle at a different circumferential location (Figure 8, Figure 9, element 40), (Figure 10, element 55), (column 3, lines 28-29).

Regarding Claim 24, Klein teaches an amplifier for amplifying signals from the light detectors (column 14, lines 40-50), which comprises employing a signal processing algorithm on the signals from said light detectors, to detect blood constituents (column 11, lines 43-67), (column 12, lines 1-6), (column 2, lines 55-57), (column 3, lines 23-29).

Regarding Claim 25, Klein teaches employing a signal processing algorithm on the signals from said light detectors (column 11, lines 43-67), (column 12, lines 1-6), (column 2, lines 23-29), to detect hematocrit (abstract, lines 11-13), (column 1, lines 1-2), (column 2, lines 25-26), (detecting hematocrit is not different from detecting quantitative particle in blood samples).

Regarding Claim 26, Klein teaches employing a multi variable analysis of signals from all light detectors engaged in the signaling process (abstract, lines 6-13), (column 2, lines 55-67), (column 3, lines 1-29).

Regarding Claim 33, Klein teaches signals being processed in the time domain (column 3, lines 7-15).

Regarding Claim 36, Klein teaches a system to calculate hematocrit values from blood (abstract, lines 11-13), (column 1, lines 1-2), (column 2, lines 25-26), (detecting hematocrit is not different from detecting quantitative particle in blood samples), and presenting the data to a display, and/or transferring data to another application (column 14, lines 52-58).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

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matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 23, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein (U.S. Patent No. 6,315,955) in view of Nagai (U.S. Patent No. 6,365,106). Hereafter, "Klein" and "Nagai".

Regarding Claims 23, 38, and 39, Klein teaches all the limitations of claim 7 as stated above except for the measuring taking place in a tubing that is clamped in a holder with V-shaped recesses so that tube is given a square cross section and that light emitters and sensors are arranged at the flat surfaces. Nagai teaches orifice section being clamped in a holder with V-shaped (Figure 1, element 13), (column 3, lines 13-21), (column 4, lines 38-43), (figure 2, elements 4, 13), and having a square or rectangular cross section (Figure 6, elements 21, 23, 26). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Klein by having V-shaped recesses, and a square cross section in order to "minimize loss in energy due to refraction or scatter by sidewalls".

9. Claims 30, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein (U.S. Patent No. 6,315,955) in view of Stone et al. (U.S. Patent No. 6,694,157). Hereafter, "Klein" and "Stone".

Regarding Claims 30, Klein teaches an amplifier for amplifying signals from the light detectors, which comprises employing a signal processing algorithm on the signals from said light detectors (column 11, lines 43-67), (column 12, lines 1-6), (column 2, lines 23-29).

However, Klein does not teach detecting oxygen saturation in blood. Stone teaches detecting oxygen saturation in blood (column 2, lines 44-46). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Klein by detecting oxygen saturation in blood in order to analyze patient's blood sample.

Regarding Claim 35, Klein teaches signals being processed in the time domain (column 3, lines 7-15).

Regarding Claims 37, Klein teaches a system to calculate hematocrit values (abstract, lines 11-13), (column 1, lines 1-2), (column 2, lines 25-26), (detecting hematocrit is not different from detecting quantitative particle in blood samples), and presenting the data to a display, and/or transferring data to another application (column 14, lines 52-58).

However, Klein does not teach calculating oxygen saturation values in blood. Stone teaches measuring oxygen saturation in blood (column 2, lines 44-46). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Klein by measuring oxygen saturation in blood in order to analyze patient's blood sample.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klein (U.S. Patent No. 6,315,955) in view of Stone et al. (U.S. Patent No. 6,694,157) and further in view of Nagai (U.S. Patent No. 6,365,106). Hereafter, "Klein", "Stone", and "Nagai".



Regarding Claim 40, Klein and Stone teaches all the limitations of claims 7, and 37 as stated above except for the measuring taking place in a tubing that is clamped in a holder with V-shaped recesses so that tube is given a square cross section and that light emitters and sensors are arranged at the flat surfaces. Nagai teaches orifice section being clamped in a holder with V-shaped (Figure 1, element 13), (column 3, lines 13-21), (column 4, lines 38-43), (figure 2, elements 4, 13), and having a square or rectangular cross section (Figure 6, elements 21, 23, 26). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Klein and Stone by having V-shaped recesses, and a square cross section in order to "minimize loss in energy due to refraction or scatter by sidewalls".

***Allowable Subject Matter***

11. Claims 10, 27, 28, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: there was no prior art found by the examiner that suggested modification or combination with the cited art so as to satisfy the combination of all the limitations in claims 10 and 27.

13. As claim 10, the prior art of record taken along or in combination, fails to disclose or render obvious "second array of light detectors are longitudinally located at a third location around said receptacle's circumference, and the light detectors<sup>S</sup> are arranged to encircle the receptacle at that circumferential location" in combination with the rest of the limitations of claim 7.

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14. As claim 27, the prior art of record taken along or in combination, fails to disclose or render obvious “a third array of light detectors are longitudinally located at a fourth location around a receptacle's circumference, and the light detectors are arranged to encircle the receptacle at that circumferential location and an second array of light emitters longitudinally located at a fifth location around said receptacle's circumference, and the light detectors are arranged to encircle the receptacle at that circumferential location” in combination with the rest of the limitations of claim 7.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references of Klein (U.S. Patent No. 6,315,955), Stone et al. (U.S. Patent No. 6,694,157), and Nagai (U.S. Patent No. 6,365,106) teach of various features similar to the claimed invention.

### ***Fax/Telephone Information***

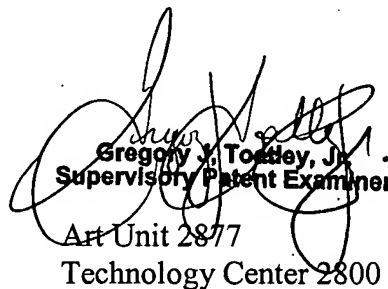
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri T. Ton whose telephone number is (571) 272-9064. The examiner can normally be reached on 10:30am - 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



August 4, 2007  
Examiner Tri Ton/SN



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